

#### **4.11 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES**

This section describes the major irreversible and irretrievable commitments of resources that can be identified at this programmatic level of analysis. A commitment of resources is irreversible when its primary or secondary impacts limit the future options for a resource. An irretrievable commitment refers to the use or consumption of resources that would be neither renewable nor recoverable for later use by future generations.

The programmatic decisions resulting from this PEIS will commit the resources required for the new construction and renovation of storage and disposition facilities at various locations. This section discusses three major resource categories that would be committed irreversibly or irretrievably to the proposed actions: land, materials, and energy.

**Land.** Land that is currently occupied by or designated for storage or reactor-related disposition facilities could ultimately be returned to open space if buildings, roads, and other structures were removed, areas were cleaned up, and the land revegetated. Alternatively, some of the facilities could be modified for use in other DOE programs. Therefore, commitment of this land is not necessarily irreversible. However, land rendered unfit for other purposes, such as that set aside for radiological, hazardous and chemical waste disposal facilities or deep borehole emplacement, represents an irreversible commitment because wastes in below-ground disposal areas could not be completely removed nor could the site be feasibly used for any other purposes following closure of disposal or storage facilities. This land would be perpetually unusable because the substrata would not be suitable for potentially intrusive activities such as mining, utilities, or building foundations. However, the surface area appearance and biological habitat lost during construction and operation of the facilities could be restored to a large extent.

**Materials.** The irreversible and irretrievable commitment of material resources during the entire life-cycle of storage and disposition includes construction materials that could not be recovered or recycled, materials rendered radioactive that could not be decontaminated, and materials consumed or reduced to unrecoverable forms of waste. Where construction is necessary, materials required could include wood, concrete, sand, gravel, plastics, steel, aluminum, and other metals. Construction resources that could not be recovered and recycled with present technology would be irretrievably lost. However, none of these identified construction resources is in short supply, and all would be readily available in the vicinity of the candidate and representative sites.

Materials committed to the manufacture of new equipment that could not be recycled at the end of the project's useful lifetime would be irretrievable. Operating supplies, miscellaneous chemicals, and gases consumed during the operation of long-term storage and disposition facilities, while irretrievable, would not constitute a permanent drain on local resources or involve any material in critically short supply in the United States. Materials consumed or reduced to unrecoverable forms of waste, such as uranium, would also be irretrievably lost. Resources could be recycled. Plans to recover and recycle as much of these valuable, depletable resources as would be practical would depend on the need. Each resource would be individually considered at the time a recovery decision was required. The spent fuel generated by the reactor alternative would not be processed so as to recycle the LEU or Pu.

**Energy.** The irretrievable commitment of energy resources during construction and operations of the long-term storage and disposition facilities would include the consumption of fossil fuels used to generate heat and electricity for the sites. Energy would also be expended in the form of diesel fuel, gasoline, and oil for construction equipment and transportation vehicles. The energy required to operate the long-term storage and disposition facilities, quantified in the site infrastructure sections previously presented in this chapter, would be irretrievable.

Any decision to dispose of Pu represents an irretrievable commitment of a potential energy source. To protect against proliferation, all disposition alternatives are irreversible and the Pu is lost forever as a fuel resource.